Multiple micronutrient supplementation in pregnant women

a meta-analysis of 12 trials

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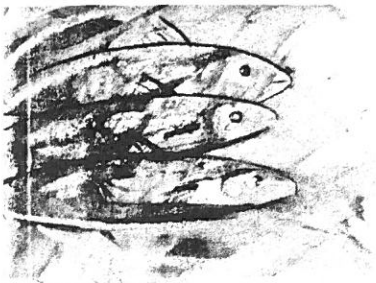

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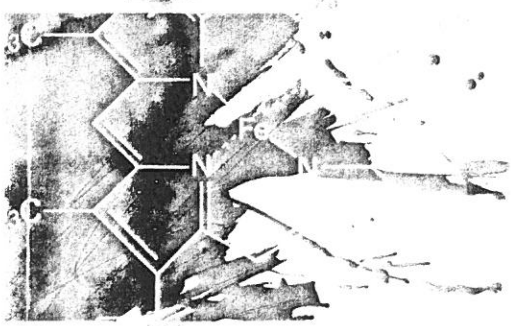

ABSTRACTS
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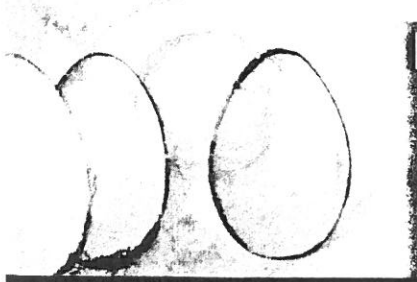

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other countries in the region.
RESULTS & FINDINGS: The application of ELCSA in Mexico and Haiti indicates that the scale has strong internal validity (Cronbach alpha > 0.85) as well as convergence (e.g. predicts meal skipping patterns) and predictive validity (e.g., predicts poverty level and childhood malaria risk) in diverse socio-economic and cultural settings.
CONCLUSIONS: ELCSA is a quantitative tool easy to apply at relatively low cost that can improve the ability of decision makers to develop, implement, and monitor better informed evidence-based food policies.

S50-7
THE BRAZILIAN COMMITMENT TOWARDS HOUSEHOLD FOOD SECURITY: NATIONAL SURVEYS AND IMPLICATIONS FOR THE "ZERO HUNGER" STRATEGY
Leonor Pacheco, PhD, Social Development Ministry, Brasilia

Abstract not received.

S51: Preventing Micronutrient Deficiencies in Women and Young Children: Emerging Issues and Latest Findings

S51-1
VITAMIN AND MINERAL DEFICIENCIES IN PREGNANT WOMEN AND CHILDREN: A WHO UPDATE
Lisa M. Rogers and Grace C Rob, Department of Nutrition for Health and Development, World Health Organization, Geneva, Switzerland

Vitamin and mineral deficiencies affect large segments of the population worldwide and multiple deficiencies often coexist. We report on the most recent estimates of deficiency published by WHO, which are based on data from the WHO Vitamin and Mineral Nutrition Information System (VMNIS) as of December 2006. Selected data includes anaemia estimates for preschool-age children (PreSAC) and pregnant women (PW), estimates of serum retinol <0.70 μmol/L for PreSAC and estimates of night blindness for PW, along with estimates of insufficient iodine intake in school-age children (SAC). Anaemia affects 293 million PreSAC and 56 million PW worldwide. An estimated 9.8 million PW are affected by night blindness, 190 million PreSAC have vitamin A deficiency and 266 million SAC have insufficient iodine intakes. The most affected are populations in Africa and South-East Asia. Ten countries have a moderate to severe public health problem of anaemia, vitamin A and iodine deficiencies in children, while 107 countries have a moderate to severe problem of anaemia and vitamin A deficiency. Anaemia and deficiencies of vitamin A and iodine commonly coexist in PW and children in many countries, mostly those in Africa and South-East Asia. WHO is upgrading and expanding VMNIS to include additional micronutrients.

S51-2
EFFECTIVENESS OF WEEKLY IRON/FOLATE IN NON-PREGNANT WOMEN OF REPRODUCTIVE AGE
Tommaso Cavalli-Sforza, Philippines

Abstract not received.

S51-3
IMPACT AND COVERAGE OF IRON/FOLATE IN PREGNANT WOMEN
Parul Christian, USA

Abstract not received.

S51-4
MULTIPLE MICRONUTRIENT SUPPLEMENTATION IN PREGNANT WOMEN: A META-ANALYSIS OF 12 TRIALS
Barrie M Margetts and the Maternal Micronutrient Supplementation Study Group (Pierre Adou, Victor M. Aguayo, Lindsay H. Allen, Zulfiqar Ahmed Bhutta, Parul Christian, Shaonong Dang, Gwenola Desplats, Michael Dibley, Shams El Arifeen, Caroline Fall, David Fisher, Henrik Friis, Exnevia Gomo, Batool Azra Haider, Adi Hidayat, Abbas Jahari, Pernille Kaestel, Patrick Kolsteren, Kusharisupeni, Aissa Mamadoultaibou, Dharma Sharma Mandandhar, Barrie Margetts, Clive Osmond, David Osrin, Lars Ake Persson, Usha Ramakrishnan, Dominique Roberfroid, Carine Ronsmans, Anuraj H. Shankar, Subarkah, Sunawang, Budi Utomo, Anjana Vaidya, Hong Yan, Noel Zagre, Lingxia Zeng).

This meta-analysis reports the effects on birth outcomes and mortality of multiple micronutrient (MMN) supplementation mainly compared with iron plus folic acid (Fe + FA) during pregnancy in recent randomised controlled trials (RCTs). Original data from 12 RCTs in Bangladesh, Burkina Faso, China, Guinea- Bissau, Indonesia, Mexico, Nepal, Niger, Pakistan and Zimbabwe, all providing approximately 1 Recommended Dietary Allowance (RDA) of multiple micronutrients to presumed HIV-negative women, were included. Compared with controls, MMN supplementation was associated with an increase in mean birthweight (pooled estimate: +22.4 g [95% CI 8.3 to 36.4]; p=0.002), a reduction in prevalence of low birthweight (pooled OR=0.89 [95% CI 0.81-0.97]; p=0.01) and SGA birth (pooled OR=0.90 [95% CI 0.82-0.99]; p=0.03) and an increase in LGA birth (pooled OR=1.13 [95% CI 1.00-1.28]; p=0.04). The intervention effect relative to the control group, was +39.0 g (95% CI +22.0 to +56.1 g) in mothers of BMI >20 kg/m2, compared with –6.0 g (95% CI –28.8 to +16.8 g) in mothers of BMI <20 kg/m2. MMN supplementation did not decrease the risk of stillbirths (OR 1.01, 95% CI 0.88-1.16), early neonatal mortality (OR 1.23, 95% CI 0.95-1.59), late neonatal mortality (OR 0.94, 95% CI 0.73-1.23), or perinatal mortality (OR 1.11, 95% CI 0.93-1.33).
CONCLUSIONS: Compared with iron and folic acid supplementation alone, maternal supplementation with multiple micronutrients during pregnancy in low-income countries resulted in a small increase in birthweight and a reduction in low birthweight of about 10%, but did not decrease mortality.

S51-5
MULTIPLE MICRONUTRIENTS RATHER THAN TWO OR FEWER MICRONUTRIENTS IMPROVES GROWTH, NUTRITIONAL STATUS AND CHILD DEVELOPMENT OUTCOMES IN MICRONUTRIENT-DEFICIENT CHILDREN
Deanna K. Olney[1], Janet M. Peerson[2], Lindsay H. Allen[2,3]
[1]International Food Policy Research Institute, [2]Program in International and Community Nutrition, University of California Davis, [3]USDA, ARS Western Human Nutrition Research Center

Micronutrient deficiencies such as vitamin A, iron and zinc are prevalent and often coexist, but most micronutrient interventions in developing countries have focused on the effects of one or two micronutrients on improving growth, nutrition and development outcomes in children. However, more recently, the effects of providing multiple micronutrients rather than two or fewer micronutrients on improvements in child growth, nutrition and development outcomes has been examined in a number of studies. To examine the issue of whether providing multiple micronutrients rather than one or two micronutrients is more effective in improving these outcomes in children; we conducted a random-effects meta-analysis of randomized controlled trials on the effects of multiple micronutrients on child growth and nutritional status. In addition, we reviewed the effects of multiple micronutrients on child development and morbidity outcomes. The meta-analysis found that multiple micronutrient interventions resulted in small but significant improvements in length or height, weight, hemoglobin, serum zinc and serum retinol. In addition, all of the studies reviewed demonstrated a consistent pattern of positive effects of multiple micronutrients on children's motor development. The efficacy of multiple micronutrients in improving growth, nutrition and development outcomes varies across trials but overall the evidence indicates that outcomes are better when providing multiple micronutrients rather than two or fewer micronutrients.